

RESEARCH ARTICLE

Historical and current occurrences of Long-legged Buzzard *Buteo rufinus* in Romania

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Received 30 May 2024 | Accepted 21 June 2024 | Published 30 June 2024

Citation: Birău AC, Drăghici A-C, Murariu D, Stanciu C-R, David D-C, Osváth G (2024) Historical and current occurrences of Long-legged Buzzard *Buteo rufinus* in Romania. Travaux du Muséum National d'Histoire Naturelle "Grigore Antipa" 67(1): 129–151. <https://doi.org/10.3897/travaux.67.e128641>

Abstract

The geographic distribution of the Long-legged Buzzard (*Buteo rufinus*) in Europe has expanded during the last decades. The aim of our study is to (1) gather a comprehensive dataset regarding the presence of the Long-legged Buzzard in Romania, including all the available historical (i.e., before the year 2000) and recent observations (i.e., between 2001–2023), to (2) map Long-legged Buzzards' observations, and to (3) show the occurrences of the species according to phenological periods of the year, in the different regions of Romania. Historical occurrence data are available from 1891. Using this data, we mapped the distribution of the Long-legged Buzzards between 1891 and 2000, and found that the species was present during this period in the similar regions of Romania as the ones from where recent observations were undertaken, i.e., between 2001 to 2023. However, after the year 2000 considerably more

observations are available, indicating a potential expansion of the species and/or an increased sampling effort. Furthermore, contrary to the previous assumptions, our data revealed that the species is present in recent time in each phenological period of the year, that is, pre-breeding, breeding, post-breeding, wintering, in all regions. Overall, our comprehensive dataset may be the foundation of future works aiming to reveal details about the potential expansion rate, and the temporal and spatial distributions of the species over the last century.

Keywords

Buteo rufinus, Long-legged Buzzard, Romania, museum records, ornithology database, phenology, occurrence data.

Introduction

The Long-legged Buzzard (*Buteo rufinus*) is of Old World species origin with a wide distribution range covering Eurasia and North Africa (Stoychev and Demerdzhiev 2020; Pavia et al. 2022). In general, the Long-legged Buzzard prefer arid and semi-arid environments, and tend to use open habitats for foraging (Ferguson-Lees and Christie 2001; Friedemann et al. 2011; Kassinis and Charalambidou 2022). Consequently, in Europe, the species was present mostly in the Mediterranean area, yet a northward expansion of the species has been documented in the last decades (see details below). This expansion was associated with climate change and land-use change (Mrlik and Landsfeld 2002; Jetz et al. 2007; Kassinis and Charalambidou 2022). Besides these, further studies have provided also other reasons, such as the expansion of pseudo-steppes, ecological plasticity, reduction of persecution, and the reduction or disappearance of competing species (Friedemann et al. 2011; Danko 2012; Demerdzhiev 2022; Kassinis and Charalambidou 2022). Other factors that facilitate the northward expansion of the species include its higher tolerance to human disturbance, compared to other sympatric species, as well as its higher ecological plasticity in terms of nesting sites and breeding habitats (Djorgova et al. 2021a; Djorgova et al. 2021b) (Fig. 1). Understanding the distribution patterns of a species helps in identifying critical habitats and regions that need protection, in order to conserve the species and maintain biodiversity (Asaad et al. 2017; Hasui et al. 2024). Furthermore, studying the phenological distributions enhances our understanding of the species biology, ecology, and interactions with the environment (Freeman et al. 2018; Rubenstein et al. 2023; Lawlor et al. 2024; López-Ramírez et al. 2024).

The status of the species in Europe – an overview

Following the northward expansion of the Long-legged Buzzard, an increasing number of breeding populations were reported. In Greece, the number of breeding pairs increased from 60 in 1985 (Hallmann 1985) to 150–250 in 1998 (Alivizatos et al. 1998), and to 200–300 in 2000 (BirdLife International 2004; Mebs and Schmidt 2006), then remained constant with 200–300 pairs in 2009 (Legakis and Maragos

2009). Macedonia reported 20 pairs in 1985 (Vojislav et al. 1985), 50–80 pairs in 2000 (BirdLife International 2004), and the numbers remained constant in 2004 (Mebs and Schmidt 2006). There was a notable increase in the number of breeding pairs in Bulgaria, with estimates reaching up to 300 pairs (Michev and Jankov 1993), between 200–300 pairs in 1997 (Hagemeijer and Blair 1997), and 250–400 pairs for the 1998–2002 period (BirdLife International 2004). Mebs and Schmidt (2006) reported more than 800 pairs in 2003, Nankinov et al. (2004) 700 pairs in 2004, Demerdjiev et al. (2007) 650–750 pairs in 2005 and Golemansky (2011), Mebs and Schmidt (2014) and Vatev et al. (2011) 800–1000 pairs in 2011. In Ukraine, 2–8 pairs were reported in 1994 (Movchan 1994), 50–150 pairs in 2000 (BirdLife International 2004), 150–200 pairs in 2003 (Strigunov et al. 2003), and more than 250 pairs in 2009 (Akimov and Radchenko 2009). In Hungary, the population size was estimated to 2–7 pairs in 2000 (BirdLife International 2004), 4–7 pairs in 2002 (Mebs and Schmidt 2006), 10–12 pairs in 2016 (Dudás 2018), and 10–15 pairs in 2017–2020 (Dudás and Bagyura 2021). Breeding of this species was first confirmed in Serbia in 1991 (Šćiban et al. 2015). Since then, the number of pairs has increased to 12–15 in 1993–1995, and 22–28 in 1997–2002 (Mrlik and Landsfeld 2002; Burfield and van Bommel 2004; BirdLife International 2004). The next estimation was between 15–20 pairs in 2004 (Mebs and Schmidt 2006). In the 2000s in Albania was estimated population size of 0–10 pairs (Mebs and Schmidt 2006). Subsequently, one pair was reported breeding in 2019 (<https://birdsofalbania.com/tag/buteo-rufinus/>). In Bosnia and Herzegovina, 20–40 breeding pairs were indicated in 2012 (Kotrošan and Hatibović 2012). In the Republic of Moldova one pair was reported in 2014 (Ajder et al. 2014), and 30–50 pairs in 2023 (Ghilan Mihai - pers. comm). The number of the Long-legged Buzzard pairs increased in Cyprus from less than 20 in the late 1990s to 34 in 2005, 63 in 2012, and 115 in 2021 (Kassinis and Charalambidou 2022). In 1989, the population of Long-legged Buzzard was estimated to be between 150–200 pairs in Yugoslavia, Bulgaria, and Greece (Mebs 1989). By 1994, the population had increased throughout



Figure 1. Long-legged Buzzard (*Buteo rufinus*): **A** in its typical habitat; **B** in flight. Credit: Alexandru Cătălin Birău.

the Balkan Peninsula, with 500 breeding pairs reported (Mebs 1994). At the end of the 20th century, the European population was estimated to be between 246 and 349 pairs (Hagemeijer and Blair 1997). Today, 30 years later, the European population of the Long-legged Buzzard has increased to within the range of 11,800–19,200 pairs, with over 85% of these located in Russia, Turkey, Azerbaijan, Bulgaria and Romania (Stoychev and Demerdzhiev 2020).

In the 19th century, the Long-legged Buzzard was present in Europe in southern and central Greece as a breeding species. However, since the 1950s, it has also been breeding in Macedonia and Bulgaria, expanding its range northward (Glutz von Blotzheim et al. 1971; Danko 2012), an expansion based on breeding sites from Bulgaria, Turkey, and Tunisia (Glutz von Blotzheim et al. 1971; Bijleveld 1974; del Hoyo et al. 1994). A nesting population of Long-legged Buzzard existed in Ukraine since historical times (Strigunov et al. 2003). There are two hypotheses on the origin of the Long-legged Buzzard from Ukraine: the insular form - from its former range hypothesis (Strigunov 1987), and the Balkan-Pre Caucasian hypothesis (Grinchenko et al. 2000). Colonisation of areas in Ukraine began to increase in the early 1990s (Domashevsky et al. 2005), and there have been reports of expansion northwards (Stativa and Knysh 2010; Viter 2014). Sterbetz (1960) noted the expansion of the species to the north from the Balkans to Central Europe, and its increasing frequency in Hungary. Evidence for this was the report of the first nesting in the northern Hortobágy area (Dudás and Sándor 1993; Dudás et al. 1993). The first breeding of the Long-legged Buzzard was confirmed in Serbia in 1990 (Grubač 1995). The breeding area in Europe later moved to Crete, Albania, Bosnia and Herzegovina, Romania, and Ukraine (Munteanu et al. 1997). In the Republic of Moldova, breeding of the species was reported in 2014 (Ajder et al. 2014). In the 2000s, the number of nesting pairs remained constant, or even decreased, around the Mediterranean and the Black Sea, without favourable factors (Mrlik and Landsfeld 2002). Notwithstanding, a trend of population increase in this area was subsequently recorded in Cyprus (Kassinis 2009; Kassinis and Charalambidou 2022).

In Central and Western Europe, the presence of the Long-legged Buzzard has been reported in Austria (Ranner et al. 1995; Laber and Ranner 1997; Zuna-Kratky et al. 2000), Slovakia (Danko 2012), Slovenia (Albegger 2015), the Czech Republic (Šírek 2012), Poland (Tomiałojć and Stawarczyk 2003), Germany (Glutz von Blotzheim et al. 1971), and Switzerland (Maumary et al. 2007). The Long-legged Buzzard has been recorded in various European countries including the Netherlands (van der Vliet and Laan 2005), Denmark and Greenland (Olsen 1988), first observation in Italy (Mingozzi 1984), Spain (Canary Islands/first record in April 1995; Mrlik and Landsfeld 2002), France (Dubois et al. 2008), and Belgium (Faveyts et al. 2016), Sweden and Finland (Ławicki et al. 2013; Rodriguez et al. 2013), and was first recorded in the United Kingdom in 2019 (BTO 2024).

Status of the species in Romania

In Romania, the first documented observation of Long-legged Buzzard originates from 1891, from Transylvania region (Klemm and Kohl 1988). After that, there were no detections for a relatively long period of time (Swann 1926). The Long-legged Buzzard established itself in Dobrogea region at the end of the 20th century, with the first nesting reported in 1996 (Schmitz 1999), which led to a subsequent population explosion in the following years. In Romania, the number of observations of the Long-legged Buzzard has increased over the last decades (Daróczi and Zeitz 2008).

The breeding population of the Long-legged Buzzard in Romania was first estimated to fall within the range of 5–15 pairs in 1996 (Schmitz 1999), then 10–20 pairs in 2002 (Munteanu et al. 2002), and for the same year, between 65–110 pairs by other authors (Mebs and Schmidt 2006), 25–65 pairs in 2003 (Daróczi and Zeitz 2008), 200 pairs in 2007 (Danko 2012), and 100–180 pairs in 2008 (Daróczi and Zeitz 2008). Regional assessments have also revealed 19 pairs in 2011–2012 in Moldova region (i.e., eastern part of Romania; Baltag et al. 2014), and 10–30 pairs in western Romania in 2012 (Danko 2012). Currently, the breeding population size is estimated to be 400–900 pairs (Fântână et al. 2022).

In 2006, there were indications of breeding for the first time in the western part of Romania, specifically in the Timiș and Arad regions. As per the research by Danko (2012), it was observed that one breeding pair of Long-legged Buzzard near Sânicolau Mare had already occurred between 2006 and 2008. According to the report by Baltag and Ion (2007), a breeding pair was observed in the Moldova Region of eastern Romania. Furthermore, an expansion was noted in the Republic of Moldova, and recorded as a new breeding species by Baltag and Ajder (2011). Baltag (2010) also reported breeding in Moldova.

The Long-legged Buzzard was previously regarded as a summer visitor until the early 2000s in Moldova (Baltag et al. 2012). In north-western Dobrogea (Vederoasa lake) the Long-legged Buzzard was reported during the period of 2000–2005 as a summer visitor and transient, with no records during wintertime (Cuzic 2022). Other reports from the south and west of Dobrogea between 1993 and 2003, from Lake Bugeac and Lake Traian (Petrescu et al. 2006) confirm the same phenological behaviour. Mestecăneanu and Bodescu (2016) identified the Long-legged Buzzard as a summertime and migratory visitor, which is present between March and October. Subsequent studies have also demonstrated the presence of the species during winter, with the phenomenon being a common occurrence in Dobrogea, and occasionally in Moldova (Baltag et al. 2012). Birău et al. (2018) further noted that the nesting specimens from southern Romania exhibited sedentary behaviour, demonstrating territorial affinity, even outside the nesting period.

The aim of the current study is to (1) gather a comprehensive dataset regarding the presence of the Long-legged Buzzard in Romania, including all of the available historical and recent observations, to (2) map the historical and current observations

of the Long-legged Buzzard, and to (3) show the occurrences of the species in different phenological periods of the year, in different regions of the country.

Material and methods

We systematically searched the literature sources for data concerning the historical and current occurrence of the Long-legged Buzzard. The dataset was compiled from a variety of sources, encompassing both published and unpublished data. These sources comprised of journal articles, books, research theses, museum catalogues, museum collections, and field reports. We also checked online databases, and downloaded all of the available observations for Romania, up to and including 31.12.2023. We also included in the database observations from the social network (Facebook), but only if the accuracy of the species determination was certain, and a photograph was attached to the observation. Observations from the 19th century and from the 20th century were considered historical, while from the beginning of the 21th century observations were considered recent.

To analyse the observations according to phenological seasons, we categorised the data in four periods: pre-breeding (15 February – 14 March), breeding (15 March – 31 July), post-breeding (01 August – 31 October), and wintering (01 November – 14 February) (Iezekiel et al. 2016; Dravecky et al. 2023). Additionally, other parameters, such as sex and age, were also included in the database, whenever possible.

The final data set, resulting from the elimination of multiple observations (two or more consulted databases with identical observation), comprised of 8,749 entries. Of these, 8,591 could be processed in the chronological chart, with the removal of the observations that do not contain the year of the survey. Regarding the phenological analysis, 8,537 observations were used, with the remaining 212 observations included in the “unknown” category (without month of collection). Spatial information about the origin of the data was georeferenced (for detailed see Table 1). For the graphical visualisation, the dataset was imported into Quantum GIS Software (version 3.22; QGIS Development Team 2022). To analyse the dataset, we applied descriptive statistics using R statistical environment (v. 4.2.2; R Core Team 2022) and Microsoft Excel (Microsoft Corporation 2019).

Results

Variation in the number of Long-legged Buzzard observations in Romania

A total of 8,591 observations were recorded into our database, including historical and recent observations, covering more than 130 years (1891–2023) (see Fig. 2). A notable increase in the number of observations is noticeable for at the start of the 21st century, specifically in 2002, which highlights the first spike in the number of

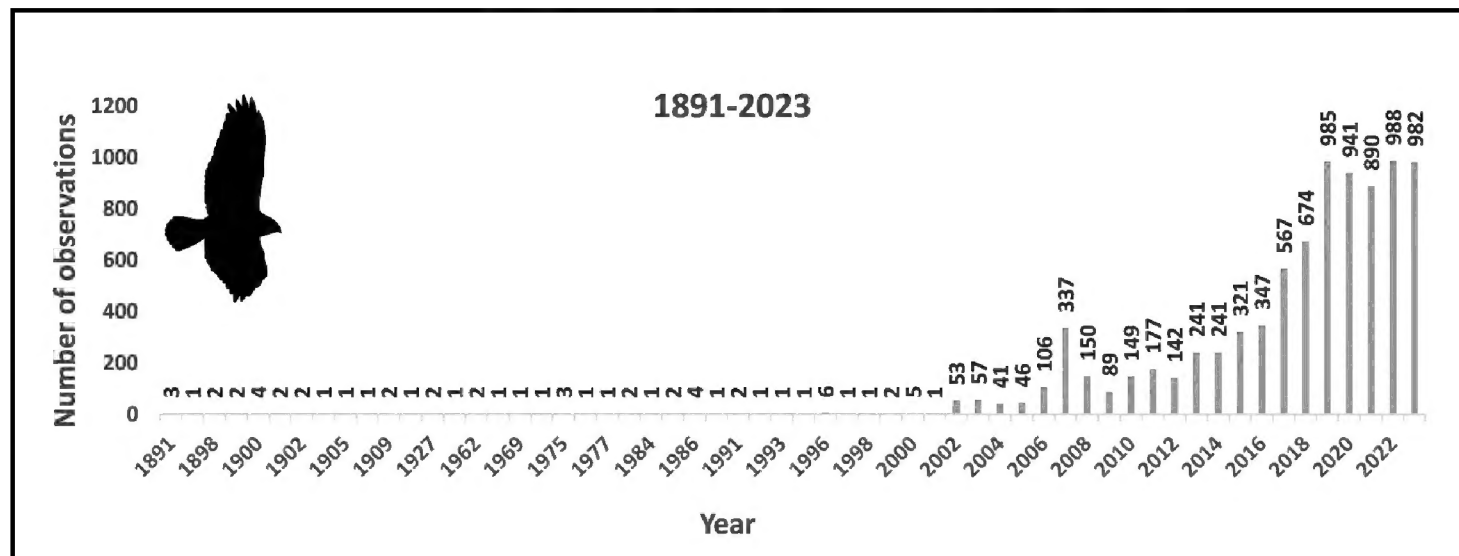


Figure 2. Temporal distribution of the number of Long-legged Buzzard (*Buteo rufinus*) observations in Romania between 1891–2023.

observations, reaching 53. In 2007, another notable increase was detected, from 106 in 2006 to 337 in 2007. The upward trend was not sustained in the following period, 2008–2012, with an average of 141 observations per year. There was an increase in the number of observations in 2013, with the trend becoming more pronounced in 2017, when the number increased from 347 to 567. The peak was reached in 2022, with 988 observations recorded (Fig. 2).

Historical and current Long-legged Buzzard observations in Romania

In the 19th and 20th century there were only sporadic observations of the Long-legged Buzzard in Romania. The most observations were provided from Dobrogea. There were also observations from Banat, Transylvania, Moldova and Oltenia (Fig. 3). In the 21st century, this number increased considerably, with new territories being observed. This is particularly evident in the plain areas, with the majority of observations remaining in the Dobrogea area. In the Carpathian Mountains and Subcarpathian region, observations remain sporadic (Fig. 4).

The distribution of Long-legged Buzzard observations in Romania in different phenological periods

The number of historical observations is small, thus only recent (21st century: 2001–2023) observations were considered. The distribution of the number of the Long-legged Buzzard during the course of the year varied monthly. Two peaks were observed, respectively in May with 1,403 recordings and in September with 1,002 recordings. The minimum of observations was recorded during the wintering period, with 358 records in February (Fig. 5).

The graphical representation of observations revealed no differences in the occurrence of species between the different regions of Romania in the four

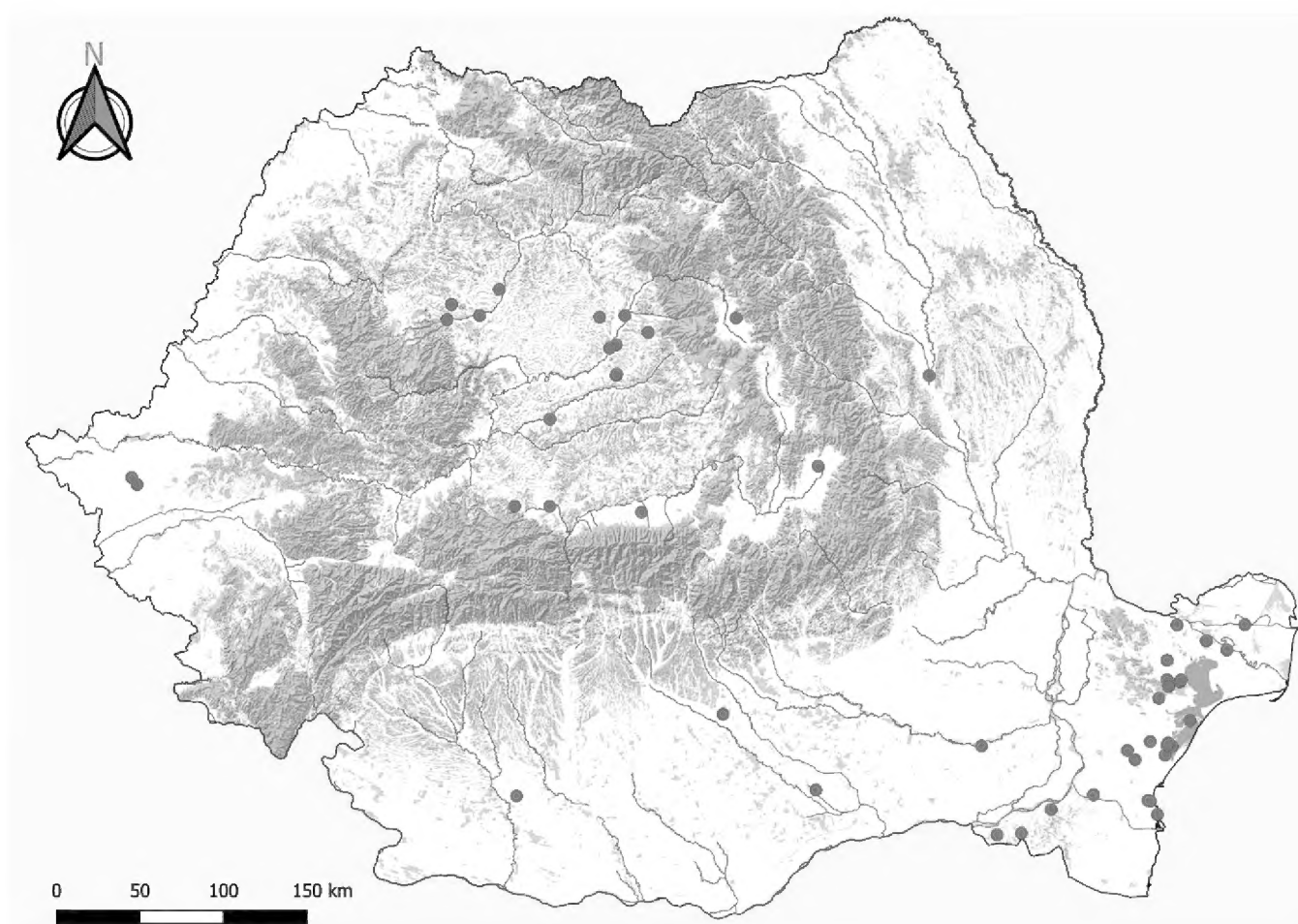


Figure 3. Geographical distribution of Long-legged Buzzard's (*Buteo rufinus*) historical observations in Romania in the period of 1891–2000.

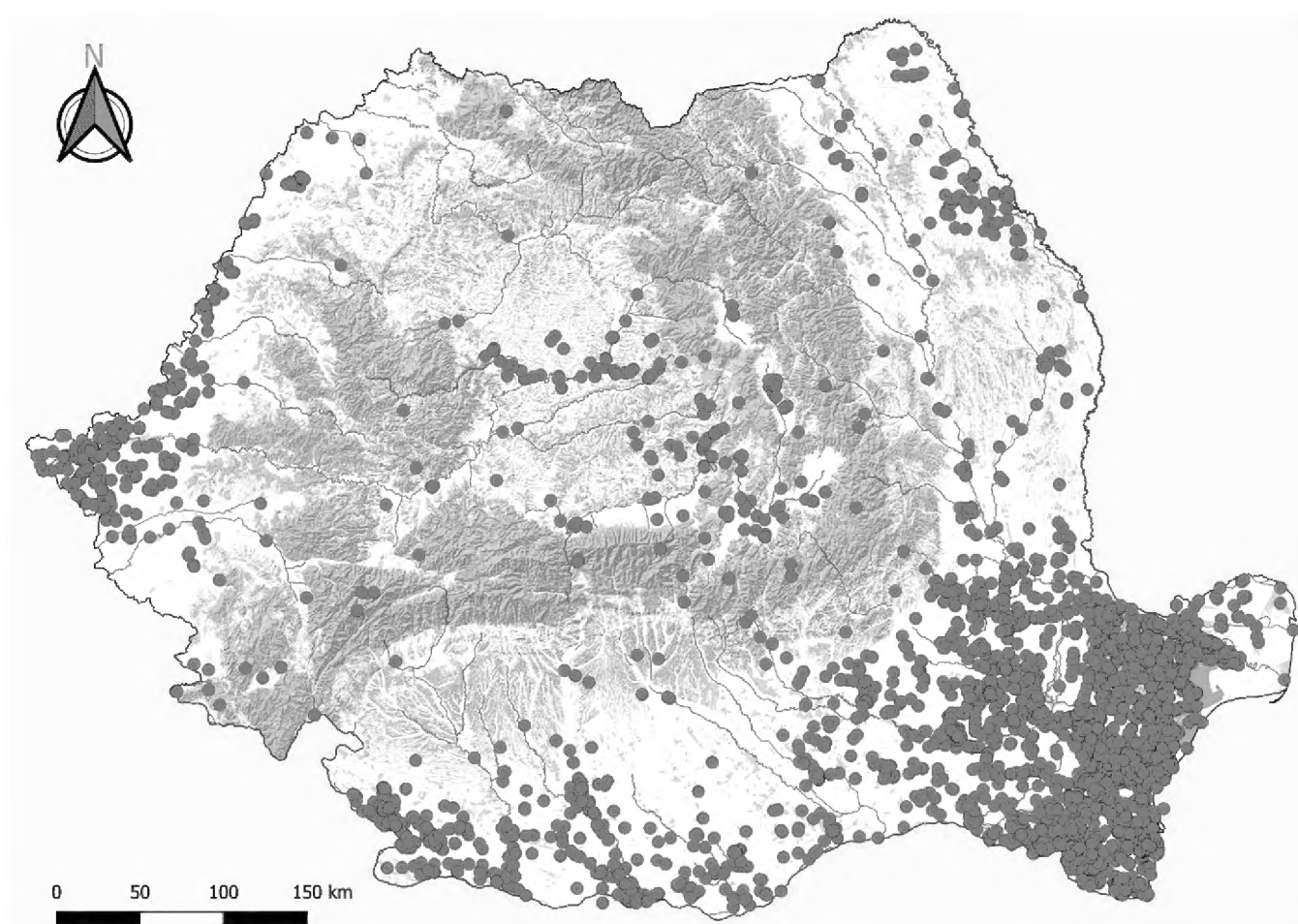


Figure 4. Geographical distribution of Long-legged Buzzard (*Buteo rufinus*) observations in Romania in the period of 2001–2023.

phenological periods (pre-breeding, breeding, post-breeding, wintering), and only the number of observations varied among phenological periods (Figs. 6–9).

Discussion

Historical and current Long-legged Buzzard observations in Romania

We compiled a comprehensive dataset regarding the presence of the Long-legged Buzzard in Romania. We searched for different sources in order to show the historical distribution of the species, and integrate this with recent observations, so that we can shed light on the variation in the number of Long-legged Buzzard observations in Romania. We mapped both historical and current observations and the distribution of the species across different phenological periods throughout the year in various regions of the country.

We found that the number of observations increased from the first documented Romanian occurrence of the species in 1891 towards 2023 (Fig. 2). However, this pattern is more accentuated in the 2001–2023 period, than between 1891–2000; whereby, the species has a similar number of yearly observations, while from 2001 to 2023 the number of observations increased, in 2002 by 54 observations, reaching the highest number of observations, 988 in 2022. The species has a relatively small number of documented observations before 2000 (Fig. 2, Table 1). The explosion in the number of observations after 2000 can be influenced by several factors, including an increase in number of various systematic bird monitoring programmes, the continuously improving digital databases for the recording of observations, and the increasing number of professional and amateur ornithologists. On the other hand,

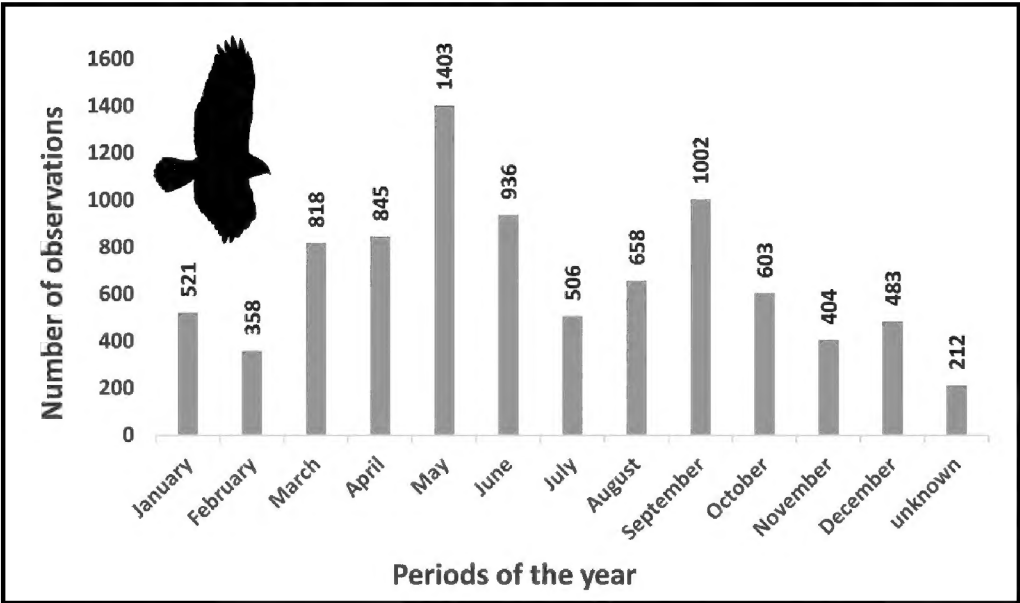


Figure 5. The number of Long-legged Buzzard (*Buteo rufinus*) observations in the period of 2001–2023 in Romania by month (pre-breeding: 15 February – 14 March; breeding 15 March – 31 July; post-breeding: 01 August – 31 October; wintering: 01 November – 14 February).

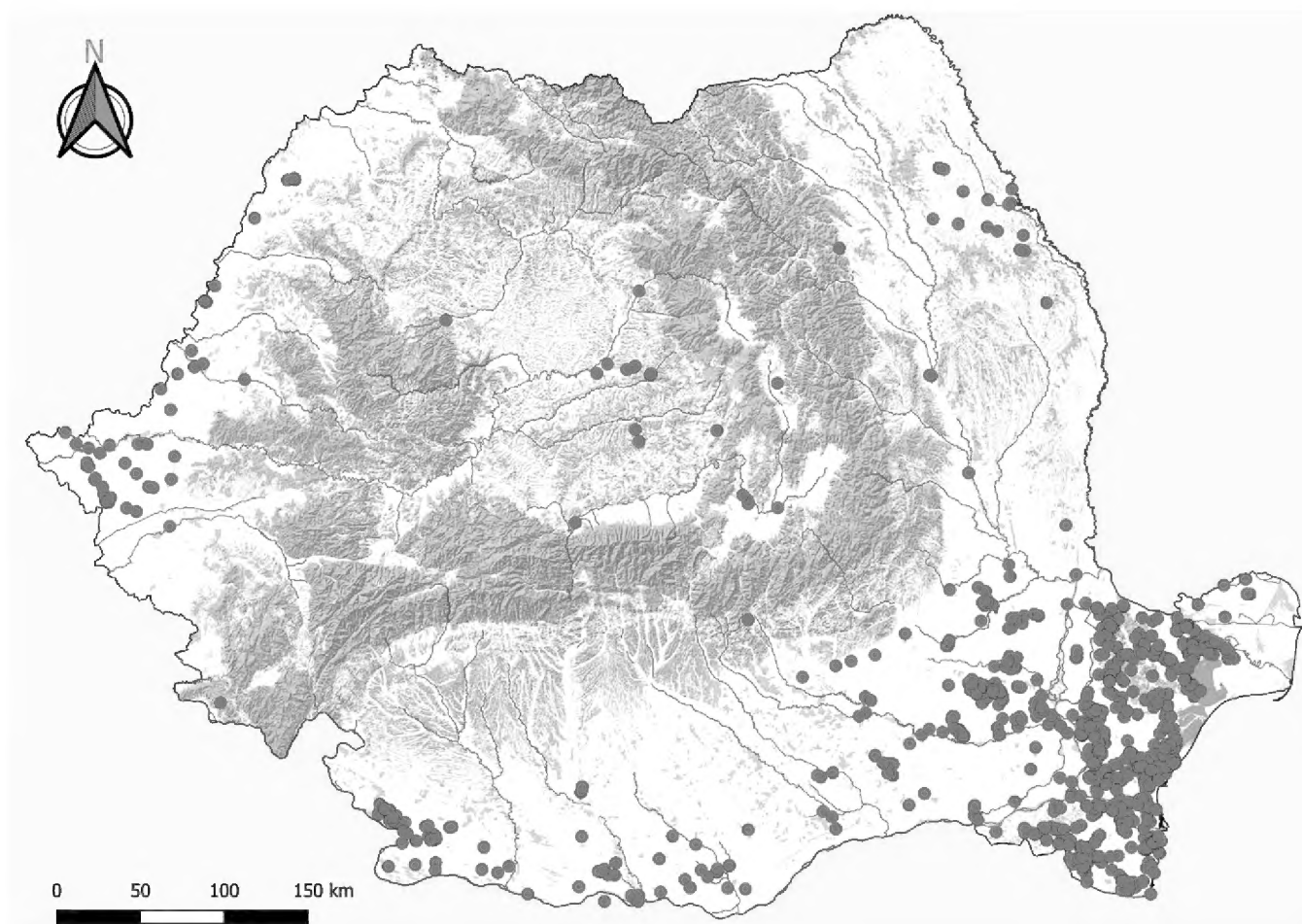


Figure 6. Geographical distribution of Long-legged Buzzard (*Buteo rufinus*) observations in Romania in the period of 2001–2023 – pre-breeding period: 15 February – 14 March.

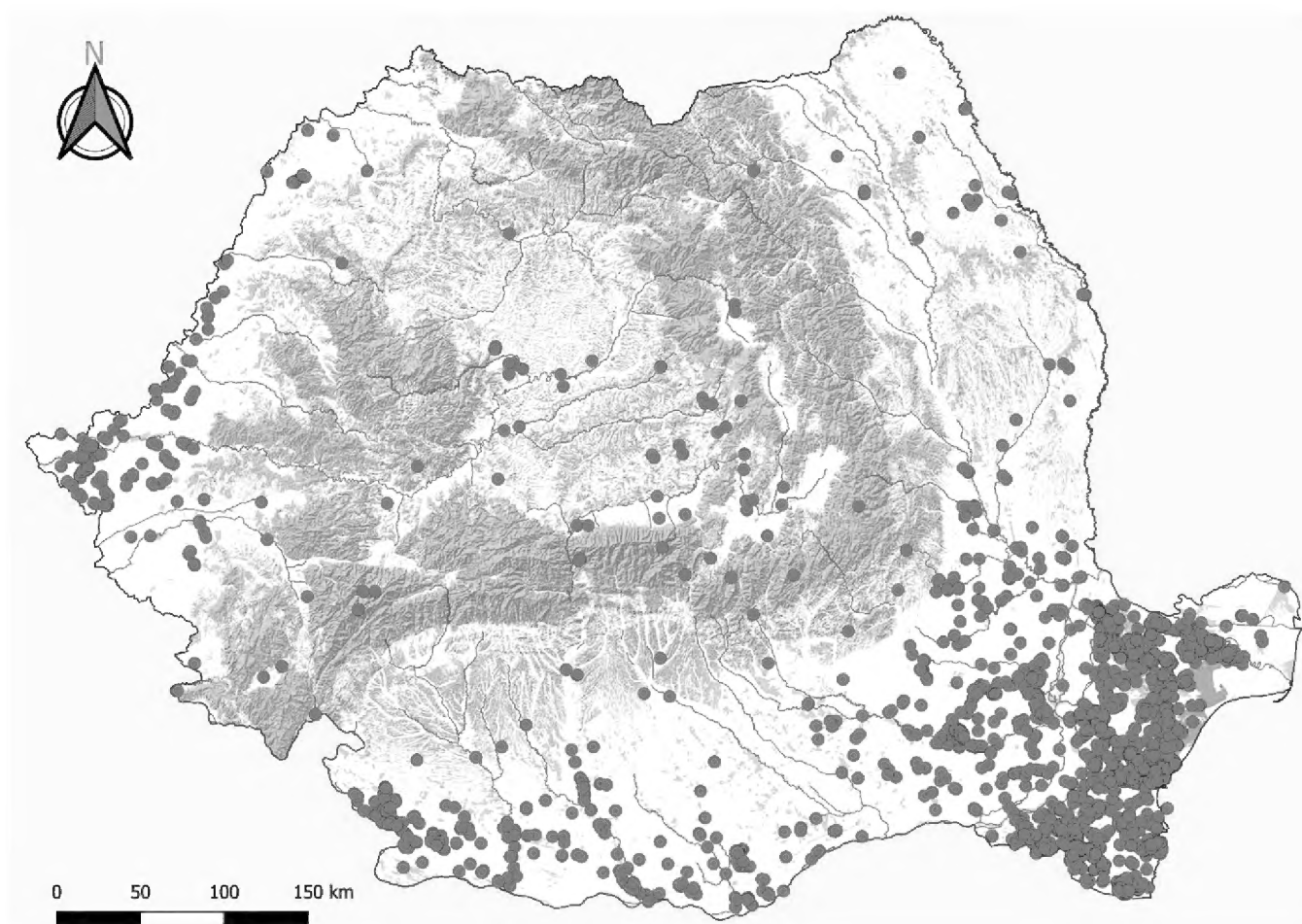


Figure 7. Geographical distribution of Long-legged Buzzard (*Buteo rufinus*) observations in Romania in the period of 2001–2023 – breeding period: 15 March – 31 July.

the increasing number of observations from the recent decades is a matching pattern with the findings from other countries, where an increase in population size has been documented, e.g., Austria, Czech Republic or Poland (Danko 2012). Moreover, an explosion was noted in the number of observations in different countries across Europe (Lawicki et al. 2013). Our study suggests that there is also a similar trend in Romania.

Long-Legged Buzzard observations in the different phenological periods of the year

The phenology of the Long-Legged Buzzard species has been studied only in certain areas of Romania (Baltag et al. 2012; Fülöp et al. 2012; Fülöp et al. 2018; Birău et al. 2018; Mestecăneanu and Bodescu 2018) thus, to the best of our knowledge, our study represents the first study concerning the presence of the species in different phenological periods, in different regions of the country (Figs. 6–9.). According to our certification of the status of the resident Long-Legged Buzzard species, the species is now found wintering throughout Romania, with an increasing number of sightings in the plain areas (Fig. 9). Sometimes resident populations may display migratory behaviour, in response to certain factors (food availability, environmental conditions, genetic anomalies affecting the navigation system, inexperienced juveniles, or juvenile dispersal) (Mabie et al. 1994; Newton 2008; Mellone et al. 2012; Nilsson and Sissel

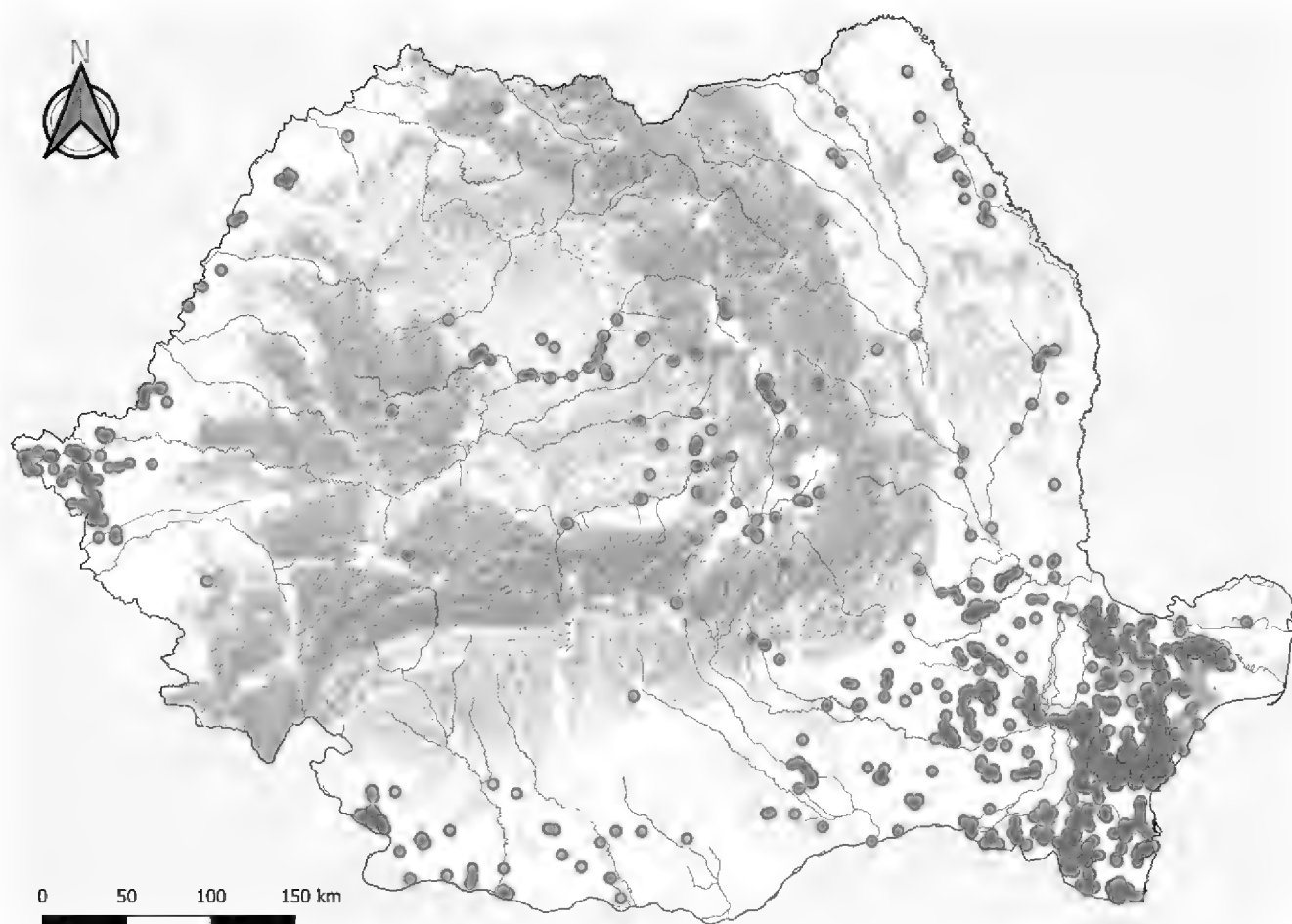


Figure 8. Geographical distribution of Long-legged Buzzard (*Buteo rufinus*) observations in Romania during the period of 2001–2023 – post-breeding period: 01 August – 31 October.

2015; Spiegel et al. 2015). The spring migration period of the species extends from late March to mid-April, with the last springtime birds being observed by mid-May (Gavrilov and Gavrilov 2005). The autumn migration period begins in late August and continues until September (Ferguson-Lees and Christie 2001). In contrast to the findings of Ławicki et al. (2013), which indicate that the peak of observations in Central and Northern Europe occurs in September, our research identified a twin-peak in the number of observations in Romania. The first peak occurs in May, which can be attributed to objective causes, such as the appearance of chicks that require feeding, and the increased activity of the parents. This is evidenced by the greater detectability of the species in the field during this period. It has to be noted, however, that the larger number of observations in May can also be affected by the larger number of observers in the field during this period, due to different bird monitoring programmes (e.g., Common Bird Monitoring). The second peak in September coincides with the peaks of activity in Central and Northern Europe (Ławicki et al. 2013) and is justified by the dispersal movements that are carried out by the birds, especially the young birds.

According to previous studies the breeding season lasts from March to July: Bulgaria (Demerdzhiev 2022; Dravecky et al. 2023); Israel (Friedemann et al. 2017); Greece (Alivizatos et al. 1998). Djilali (2023) notes that the breeding season in Algeria begins in the first week of April. However, Shafaeipour (2015) includes in his reports

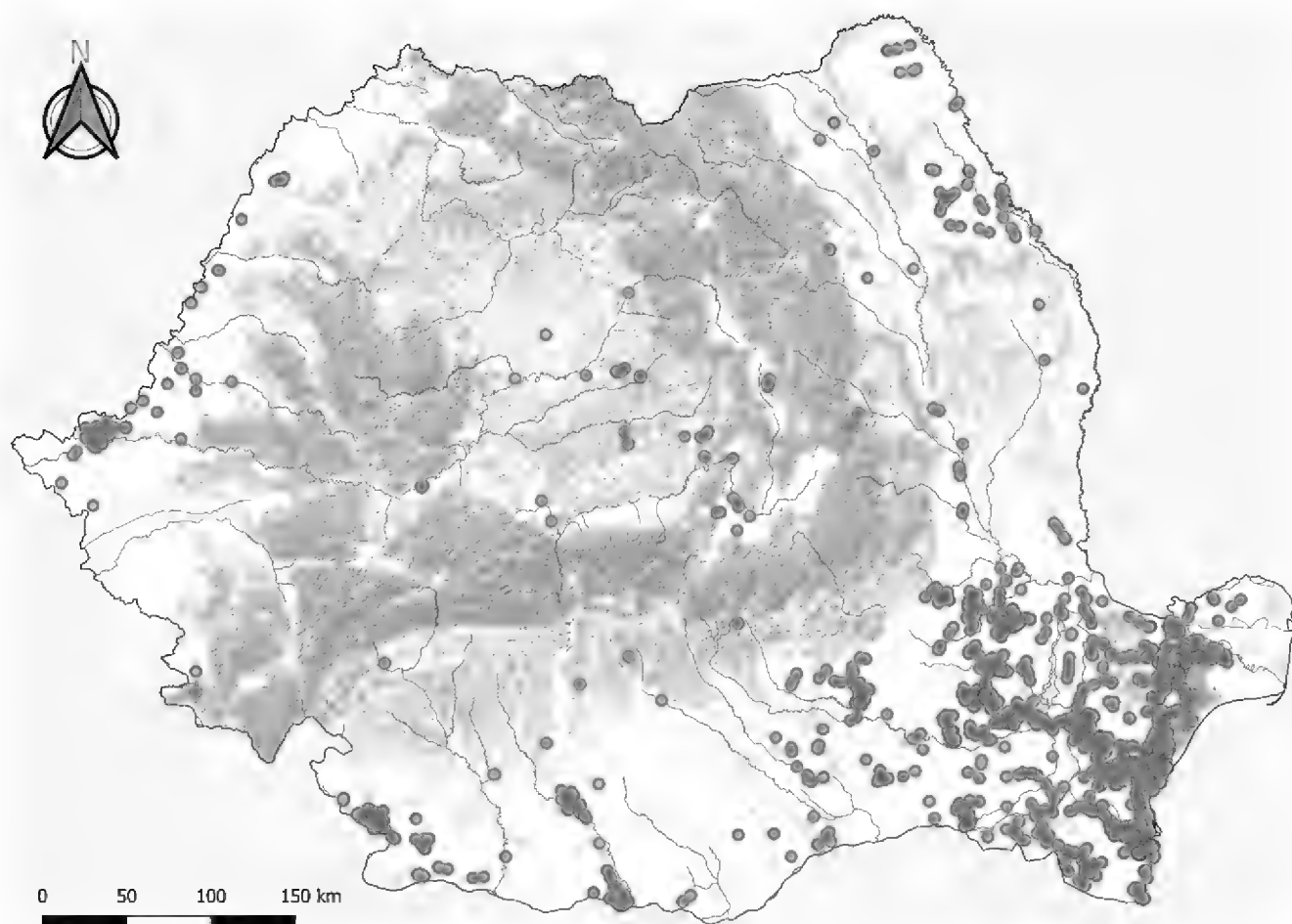


Figure 9. Geographical distribution of Long-legged Buzzard (*Buteo rufinus*) observations in Romania during the period of 2001–2023 – wintering period: 01 November – 14 February.

Table 1. List of historical observations (1891–2001) of the Long-legged Buzzard in Romania

Location (County)	Latitude	Longitude	Date	No	Observations	Age	Sex	Source of observation
Sibiu (SB)	45.793262	24.143611	15.08.1891	1				Salmen and Klemm (1980)
Nădășelu (CJ)	46.827364	23.415123	20.08.1891	1	museum specimen			Klemm and Salmen (1988)
Nădășelu (CJ)	46.827364	23.415123	26.10.1891	1	museum specimen			Klemm and Salmen (1988)
Mătășaru (DB)	44.706428	25.429488	xx.10.1896	1	museum specimen	juvenile	female	Papadopol and Tălpeanu (1987)
Nădășelu (CJ)	46.827364	23.415123	28.08.1898	1		juvenile	female	Salmen and Klemm (1980)
Ins. Ovidiu (CT)	44.250396	28.581745	01.09.1898	1		adult	male	Dombrowski (1912)
Ciulnița (IL)	44.538856	27.348506	27.08.1899	1			female	Dombrowski (1912)
Lacul Stutghiol (CT)	44.246389	28.600000	xx.09.1899	1	museum specimen	juvenile	male	Papadopol and Tălpeanu (1987)
Tulcea (TL)	45.175744	28.798215	xx.09.1900	1		juvenile	male	Dombrowski (1912)
Mircea Vodă (CT)	44.280728	28.178285	10.09.1900	1		adult	female	Dombrowski (1912)
Mircea Vodă (CT)	44.280728	28.178285	16.09.1900	1		juvenile	male	Dombrowski (1912)
Tulcea (TL)	45.175744	28.798215	xx.10.1900	1			female	Dombrowski (1912)
Ciulnița (IL)	44.538856	27.348506	21.09.1901	1		juvenile	female	Dombrowski (1912)
Sintești (IF)	44.306188	26.118203	30.02.1902	1			male	Dombrowski (1912)
Mătășaru (DB)	44.706428	25.429488	05.03.1902	1		juvenile	female	Dombrowski (1912)
Gârlița (CT)	44.067585	27.463067	14.11.1904	1		adult	female	Dombrowski (1912)
Vlahii (CT)	44.202686	27.863955	21.02.1905	1		adult	male	Dombrowski (1912)
Sintești (IF)	44.306188	26.118203	17.03.1906	1		adult	female	Dombrowski (1912)
Răscruci (CJ)	46.904295	23.770422	xx.10.1909	1	museum specimen	adult	male	Osváth et al. (2022)
Sântămărie (AB)	46.242767	24.144913	03.10.1909	1			male	Salmen and Klemm (1980)
Hodoni (TM)	45.905479	21.084817	01.11.1912	1	museum specimen	adult	male	Nadra (1972)
Târgu Secuiesc (CV)	46.000600	26.134578	20.09.1927	2	museum specimen			Brös (1928)
Târgu Secuiesc (CV)	46.000600	26.134578	28.09.1927	2	museum specimen			Brös (1928)
Satchinez (TM)	45.941792	21.044559	23.08.1945	1	museum specimen	adult	male	Nadra (1972)
Gilău (CJ)	46.750000	23.383333	07.10.1962	1	in flight			Beczy (1975)
Cluj Napoca (CJ)	46.771210	23.623635	xx.10–xx.12.1962	4	museum specimen			Filipescu (1963)
Constanța (CT)	44.175915	28.651936	29.04.1965	1	in flight			Haensel and Tălpeanu (1968)
Tariverde (CT)	44.562535	28.598926	28.11.1969	1				Dijksen et al. (1973)
Grindul Lupilor (TL)	44.673338	28.895482	20.11.1971	1				Dijksen et al. (1973)
Lăzarea (HR)	46.758596	25.525199	20.09.1975	2	in flight			Beczy (1975)
Chiheru de Jos (CJ)	46.686158	24.874128	21.09.1975	1	in flight			Kalabér (1970)
Fărăgău (MS)	46.763486	24.514801	09–10.10.1975	unknown	in flight			Klemm and Kohl (1988)

Table 1. (continued)

Location (County)	Latitude	Longitude	Date	No	Observations	Age	Sex	Source of observation
Sâmbăta de Sus (BV)	45.762553	24.824682	23.09.1976	1				Ardelean and Trifonof (2000)
Săliște (SB)	45.794103	23.885103	07.11.1901	1				Stein-von Spiess S et al. (2005)
Reghin (MS)	46.771093	24.700762	04.11.1977	unknown	in flight			Kalabér (1980)
Dunărea Veche (TL)	45.177491	29.300074	04.08.1980	1				Brehme et al. (1992)
Săcele (CT)	44.49124	28.709158	04.09.1980	1				ebird.org
Rândunica (TL)	44.99123	28.723976	12.08.1984	2				ebird.org
Beștepe (TL)	45.093182	29.014751	10.08.1985	1				Brehme et al. (1992)
Beștepe (TL)	45.093182	29.014751	17.08.1985	3				Brehme et al. (1992)
Caugăgia (TL)	44.791203	28.663479	31.05.1986	1				Brehme et al. (1992)
Enisala (TL)	44.878475	28.819215	23.08.1986	3				Brehme et al. (1992)
Enisala (TL)	44.878475	28.819215	24.08.1986	1				Brehme et al. (1992)
Enisala (TL)	44.878475	28.819215	29.08.1986	1				Brehme et al. (1992)
Cârcea (DJ)	44.274471	23.898428	04.04.1991	1	museum specimen	adult		Ridiche (2011)
Beștepe (TL)	45.093182	29.014751	05.05.1991	2				Brehme et al. (1992)
Lacul Histria (CT)	44.54274	28.722982	30.07.1992	1				ebird.org
Cetatea Histria (CT)	44.53806	28.760243	04.09.1993	1				rombird.ro
Dumbrăvioara (MS)	46.62314	24.637049	15.12.1994	1				openbirdmaps.ro
Cheia (CT)	44.515893	28.429598	xx.xx.1996	unknown		adult		Schmitz (1999)
Gura Dobrogei (CT)	44.46662	28.487549	10.06.1996	1				ebird.org
Babadag (TL)	44.889446	28.723755	10.06.1996	1				ebird.org
Enisala (TL)	44.888958	28.828125	10.06.1996	1				ebird.org
Visterna (TL)	44.853252	28.734484	11.06.1996	1				ebird.org
Beștepe (TL)	45.093155	29.015108	12.09.1996	1				ebird.org
Lacul Murighiol (TL)	45.045025	29.1675	19.08.1997	1				ebird.org
Lacul Galbeni (BC)	46.465736	26.959398	07.07.1998	3				ebird.org
Lacul Histria (CT)	44.556	28.732	06.05.1999					ebird.org
Beștepe (TL)	45.093155	29.015108	14.08.1999	1				ebird.org
Băneasa (CT)	44.07595	27.643093	30.07.2000	2				ebird.org
Lacul Histria (CT)	44.54274	28.722982	03.08.2000	1				ebird.org
Chinari (MS)	46.604717	24.587894	12.09.2000	4				ebird.org
Acățari (MS)	46.466988	24.636344	28.10.2000	1				openbirdmaps.ro

that courtship begins in late February in Iran, and Iezekiel et al. (2016) describe the nesting period in Cyprus as being from 25 January to 17 February. The chick rearing period coincides with the peak availability of prey in their feeding habitats (Newton 1979; Friedemann et al. 2016). The highest number of observations in Romania were recorded in May (Fig. 5). This coincides with the hatching of the egg and the appearance of the juvenile European Ground Squirrel, the main food source (Birău et al. 2023). The observations from the four phenological periods suggest a consistency in the areas from which they were recorded, with no evidence of spatial variation. The plain areas are the most extensively represented, with the Dobrogea area being particularly noteworthy, exhibiting a high degree of spatial coverage. Other areas that are well represented by observations include Oltenia, Banat, and Moldova. Furthermore, other authors have observed that the Long-legged Buzzard species exhibits fidelity, even outside the nesting period for certain areas in Romania (Balta et al. 2012; Birău et al. 2018). This hypothesis is corroborated for the entire nesting area in Romania.

Conclusions

In our study, we compiled a comprehensive dataset of both historical and recent observations of Long-legged Buzzard. The dataset provided by our study is intended to support further detailed investigations into the distribution patterns, expansion rate, and temporal and spatial distributions of the species. However, accurate population estimates would require breeding data and systematic surveys that are focused on the species.

This occurrence report dataset includes both geographic and temporal information on the presence of the Long-legged Buzzard in Romania. These data can be used to retrospectively assess the distribution of the species. Additionally, coupling the Long-legged Buzzard observations data with environmental data allows for ecological studies on the environmental tolerances, landscape use, behaviour, and prey availability of the species. Future studies could use this dataset to evaluate changes in the distribution of the Long-legged Buzzard over time, and how these changes correlate with climate and land cover changes.

Acknowledgments

This study would not have been possible without the support of other ornithologists who contributed with observations to the databases. Special thanks go to Cristi Domșa, who gave us access to the database of the Romanian Ornithological Society, and to József Szabó and Daróczi Szilárd for access to the Rombird database. We are thankful to Milvus Group Bird and Nature Protection Association to made Long-legged Buzzard observations, stored in openbirdmaps database, available. We are

also grateful to Zeitz Robert and Attila Fülöp for their constructive comments to the early version of manuscript. Special thanks to Edgár Papp for plotting Long-legged Buzzard observations on maps and for his indispensable suggestions during the study.

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